Research Assistant Position

Computational Simulations of Wind Turbine Aerodynamics and Performance

A fully funded Ph.D. Research Assistant position is available in the School for Engineering of Matter, Transport and Energy at Arizona State University, Aerospace and Mechanical Engineering program, starting August 2013. Funding includes tuition, a 12-month yearly stipend of up to $2000/mo, lab equipment and conference travel. Applications are accepted until June 1, 2013 or until the position is filled.

ASU, based in Tempe, AZ, is the largest research university in the United States. ASU was ranked 8th nationally in the 2012 US News and World Report list of "up and coming" universities for making significant investments in academics and research. The graduate Aerospace Engineering Program at ASU was ranked 22nd in US News and World Report for 2012. Overall, the university was ranked 45th nationally and 78th globally by AWRU in 2012.

The research topic is centered on computational modeling and simulation of turbulent flow and wakes in a large-scale wind turbine power plant. The goal of this project is to use modern high-performance computational fluid dynamics tools to predict the performance of multi-turbine wind plant facilities. The student in this project will be responsible for performing the following tasks: 1) implementing and validating an actuator line aerodynamics (AL) model; 2) performing Large Eddy Simulations of atmospheric turbulent boundary layer (ABL) driven by the real-data wind field measurements; 3) integrating ABL simulations with the AL simulations to estimate the power output of a modern wind turbine plant. This project is collaboration with the Argonne National Laboratory (ANL) and National Renewable Energy Laboratory (NREL).

Eligibility: Students must have a degree with 2.1, first class honors or equivalent from a top 100 university as per USNWR, AWRU or other major ranking system. For non-UK students, an undergraduate score of 3.6 (US), 90 (China), 17 (India/Iran) is required. Other countries will be considered on a case-by-case basis.

Prior programming experience is required (Fortran, MATLAB, C); Fortran is the language of choice for this project. Particularly relevant skills can include a background in Applied Math and Physics, Fluid Mechanics, Turbulence, Numerical Methods and Analysis, Parallel Computing. Candidates should have an undergraduate degree in Engineering, Physics, Math, or a related discipline.

If eligible, apply for the position by sending a cv, undergraduate and graduate transcripts (if relevant) directly to ypeet@asu.edu. Additionally, students must apply separately to be admitted to a graduate program at ASU at http://graduate.asu.edu/admissions.

Funding Notes: Funded by ASU/DOE